Alabama CTE

Agricultural Welding II

Foundational Standards	1	Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces. F.1
	2	Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork. F.2
	3	Explore the range of careers available in the field and investigate their educational requirements, and demonstrate job-seeking skills including resume-writing and interviewing. F.3
	4	Demonstrate digital literacy by using digital and electronic tools appropriately, safely, and ethically. F.4
	5	Participate in a Career Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork. F.5
	6	Participate in Supervised Agricultural Experiences and/or work-based, experiential, and service learning. F.6
Metal Structures	1	Interpret welding symbols used on blueprints. 1
	2	Explain the process of planning and estimating materials needed to complete a metal fabrication project. 2
	3	Explain the importance of preparing metal for welding. 3
Tools, Supplies, and Equipment	4	Demonstrate uses of tools and equipment in MIG, TIG, and FCAW welding. Examples: tools—cold chisel, file, drill, chipping hammer, metal vise grips, grinder, tip cleaner, wire brush, tongs; equipment—welding helmet, fuel valves, MIG welder, FCAW welder, TIG welder 4
	5	Distinguish among ferrous and non-ferrous metals used in MIG, TIG, and FCAW welding. 5
	6	Identify the various parts of MIG, TIG, and FCAW welding machines and explain the functions of each part. 6

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	7 **Compare shades of lenses needed in MIG, TIG, and FCAW welding and explain when darker lenses are needed.** 7
Weld Applications and Quality	**8** **Examine MIG, TIG, and FCAW welds for imperfections.** 8 a Determine corrective measures to improve welds. 8.A b Explain weld testing methods. 8.B
	9 **Explain how tensile strength, polarity, and rate of travel affect weld quality.** 9
	10 **Demonstrate the use of MIG, TIG, and FCAW welders.** 10 a Identify typical uses of various types of weld joints. Examples: butt, lap, corner, T 10.A b Adjust MIG, TIG, and FCAW machine settings for welding. 10.B c Utilize flat, vertical, horizontal, and overhead welding positions. 10.C d Demonstrate stringer, weave, overlap, and fillet welds used in MIG, TIG, and FCAW welding. 10.D
Technology Applications	**11** **Explain the use of technology that enhances metal fabrication and how it improves the quality of the work. Examples: CNC torch, virtual welding** 11